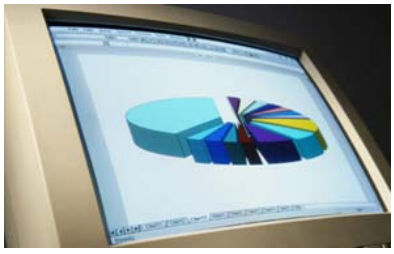
UMASS DONAHUE INSTITUTE • RESEARCH & EVALUATION GROUP

Massachusetts Department of Elementary and Secondary Education

Partnership for Online Professional Development

Summary of Findings – Summer 2008

FINAL REPORT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Executive Summary

This report summarizes the evaluation of the Partnership for Online Professional Development (POPD), a pilot program implemented by the Massachusetts Department of Elementary and Secondary Education (ESE) through NCLB Title IID. The program was designed to improve teaching practices, promote student learning, and provide capacity-building solutions through the use of Massachusetts Online Network for Education (MassONE) and other innovative educational practices.

ESE provided funding to eight projects in school districts throughout the state, including: Brockton, Cambridge, Easthampton, Community Day Charter (Lawrence), New Bedford, Smith Vocational (Northampton), Springfield, and Winchendon. The Cambridge district piloted the first course in the fall of 2007. All other courses were piloted during the winter of 2008[1] and were again offered during the summer of 2008. Summer courses were taught by teachers who had completed the spring 2008 courses and participated in a mentoring program. The mentoring program was designed to ensure that these new online instructors had adequate skills and support to facilitate the summer courses to other teachers in their districts. This report includes data from each of the eight grant recipients (with information on the nine courses[2] that were implemented during the summer 2008).

The data sources for this evaluation included participant pre-course surveys (n=166), post-course surveys (n=138), content-specific pre- post-tests (n=140) and instructor mentoring surveys (n=18). Based on the available data, all courses were successful in meeting previously defined criteria.

Of the 138 participants who responded to the post-course survey:

- 98 percent indicated that the course they participated in met or exceeded their expectations.
- 95 percent reported that the course was well organized.
- 94 percent indicated that instructor feedback was useful.
- 99 percent said that required readings enhanced their understanding of course content.
- 96 percent rated the overall effectiveness of the instructor as excellent or good.
- 96 percent rated the overall quality of their courses as excellent or good.

In addition to participants' high ratings of the courses and their instructors, it is clear that participants also improved their knowledge of course content: *On the pre- and post-tests for all courses, mean gain scores indicated statistically significant overall improvements in content knowledge.*

The most significant course strengths noted included:

- high quality of course content, classroom relevance, and course resources
- opportunity for meaningful communication with professionals from other schools/districts
- organizational structure of the course, including ease of use and clear expectations and deadlines
- flexibility and convenience of online learning

The most frequently noted course challenges included:

- time-related challenges: the time commitment involved, rigorous volume of work and deadlines, and time management difficulties

[1] Winter course findings are summarized in an alternate report which can be access on the ESE website: http://www.doe.mass.edu/edtech/grants/fy08/POPDReport.pdf

[2] A total of eight courses were implemented, though the Using Real Data course was taught twice during the summer 2008 (once in Newton and once in Cambridge).

- course content (e.g. activities, final project, concepts)
- technological challenges (e.g. downloading software, accessing materials)

Recommendations for course improvement were offered by a small number of participants and focused on technology, specific content related to individual courses, fewer assignments, and more clarity regarding various aspects of their course.

Data provided from 18 course instructor also indicated that their experience facilitating an online course through the MassONE Moodle system had been successful.

- 89 percent rated their overall experience of teaching the course as excellent or good.
- 95 percent rated the quality of mentoring support received from online course providers as excellent or good.
- 95 percent reported that the mentoring course provided them with useful information to facilitate their course and that they had a clear understanding of their role as course facilitator.
- 72 percent reported they received prompt feedback about their concerns from their mentor(s) during the facilitation of their courses.
- 89 percent indicated they were able to easily navigate through the Moodle system, and 78 percent indicated interest in teaching additional online courses using MassONE.

Introduction

This report summarizes the evaluation of the Partnership for Online Professional Development (POPD), a pilot program implemented by the Massachusetts Department of Elementary and Secondary Education (ESE) through NCLB Title IID. The program was designed to improve teaching practices, promote student learning, and provide capacity-building solutions through the use of Massachusetts Online Network for Education (MassONE) and other innovative educational practices.

ESE provided funding to eight projects in school districts throughout the state, including: Brockton, Cambridge, Easthampton, Community Day Charter (Lawrence), New Bedford, Smith Vocational (Northampton), Springfield, and Winchendon. The Cambridge district piloted the first course in the fall of 2007. All other courses were piloted during the winter of 2008 and were again offered during the summer of 2008. Summer courses were taught by teachers who had completed the spring 2008 courses and participated in a mentoring program. The mentoring program was designed to ensure that these new online instructors had adequate skills and support to facilitate the summer courses to other teachers in their districts. This report includes data from each of the eight grant recipients (with information on the nine courses[3] that were implemented during the summer 2008).

Each eight-week course provided approximately 45 hours of instruction and allowed participants to earn up to 50 professional development points (PDPs) or 3 graduate credits (which were optional and at participants' expense). All participants were required to complete pre- and post-course surveys, content-specific pre- post-tests, and final projects outside of class to demonstrate mastery of course content.

A summary of participating courses disaggregated by content area (and participating district/grant recipient) is presented in the table below.

Science
AT and UDL Strategies to Support Teaching Middle School Science (Brockton Public Schools)
Teaching Elementary Life Science (Easthampton Public Schools)
Teaching Electricity and Circuits through Inquiry (New Bedford Public Schools)
Mathematics
Algebraic Thinking: Differentiating to Reach All Learners (Winchendon Public Schools)
Developing Number Sense (Community Day Charter Public School)
Mathematics – Fractions for Elementary School Teachers (Springfield Public Schools)
Using Real Data in the Mathematics Classroom (Cambridge/Newton Public Schools)
English language arts
Universal Design for Learning and Reading Comprehension Strategies for the Middle and High School Student (Smith Vocational & Agricultural HS)

[3] A total of eight courses were implemented, though the Using Real Data course was taught twice during the summer 2008 (once in Newton and once in Cambridge).

The UMass Donahue Institute (the Institute) conducted the evaluation of the POPD project. The specific evaluation questions addressed in this report included the following:

1. To what extent did courses:
   a) meet the Massachusetts Recommended Criteria for Distance Learning Courses?[4]
   b) meet the content of the Massachusetts Curriculum Frameworks?[5]
   c) align with the 2007 Massachusetts Professional Development Institutes' four general stages of implementing standards-based instruction?[6]

2. To what extent were courses successful in:
   a) improving participants' content-specific subject matter knowledge in the specific grade levels?
   b) improving participants' teaching of the content-specific subject matter knowledge in the specific grade levels?

The criteria for success of POPD courses included the extent to which courses:

- Met the Massachusetts Recommended Criteria for Distance Learning Courses, including the following:
  - Participants were encouraged to take part in online discussions, work together in online group activities, and provide feedback to one another to improve their practice.
  - The online instructor set clear expectations regarding the amount and quality of participation required.
  - The online instructor monitored participants' discussions and postings of work on a daily basis and responded to participants' inquiries within 24 hours.
  - The course included appropriate pre- and post-assessments, which may include written exams or documentable products such as lesson plans and curriculum units.
  - The online instructor continually assessed participants' involvement and mastery of the content by monitoring their participation in online discussions, the quality of participant postings, and completed assignments.
  - The assessments were valid measures of participants' mastery of the content objectives.
- Met the content of the Massachusetts Curriculum Frameworks.[7]
- Aligned with the 2007 Massachusetts Professional Development Institutes' four general stages of implementing standards-based instruction.
- Were successful in improving participants' content knowledge and pedagogy related to the course.
  - Content-specific pre- post-test items show gains in content knowledge upon completion of the course.
  - Participants provide consistently positive course ratings on evaluation instruments.
  - Participants provide specific feedback related to increased content knowledge and pedagogy skills as a result of participation in the course.

The data sources for this report included pre-course surveys, post-course surveys, individual content-specific pre-post-tests for each course, and mentor surveys. The body of the report is organized into the following sections:

Methodology – Provides a description of instrument development, distribution, response rates, and analyses of all evaluation tools.

[4] Specific success criteria were re-created from relevant text within this ESE document: http://www.doe.mass.edu/edtech/news03/distance_learning.pdf
[5] http://www.doe.mass.edu/frameworks/current.html
[6] http://www.doe.mass.edu/frameworks/cinstitute/07/guidelines.doc
[7] The Curriculum Frameworks for each course was different, depending upon grade level and subject matter of the course, and were monitored by each course provider.

Results – Provides a brief overview of each course and key findings related to each of the following: pre-course surveys, post-course surveys, content-specific pre- post-tests, and mentor surveys.

Conclusion – Provides an overall summary of findings.

Appendix – Includes the findings from post-course surveys, disaggregated by course.

Methodology

This section of the report provides a descriptive summary of the instruments developed for the POPD project, distribution of surveys and pre- post-tests, response rates, and analyses of all evaluation tools.

Instrument Development

In order to provide an overall picture of POPD participants and to learn about participants' impressions, impacts, and suggestions for the courses, pre- and post-course surveys were developed. The surveys consisted of a mixture of closed- and open-ended response items. Closed-response items included Likert-type scale items. Questions and scales were designed collaboratively by the Institute and the ESE project coordinators. Changes were made through an iterative process of drafts and feedback.

Content-specific pre- post-test items were developed by each of the course providers, most of whom worked collaboratively with the Institute during the development of items. ESE also provided an outline format for all providers based on the 2006 DOE Content Institutes. Most of the pre- post-tests contained several multiple choice questions and one or two open-ended response items. Specific grading rubrics were designed for all open-ended response items. Changes were made to the pre- post-tests through an iterative process of drafts and feedback. Course surveys and pre- post-tests were administered online via the MassONE or Moodle survey tools.

Mentoring surveys were also developed to assess the effectiveness of the online course providers in ensuring the facilitating teachers had the necessary skills and support to effectively deliver their courses. These surveys contained open- and closed-ended survey items and were also delivered via the MassONE Moodle survey tool. All summer online course facilitators were asked to complete the mentor surveys.

Response Rates

Course facilitators instructed participants to complete the pre-course survey and pre-test before beginning each course and to complete post-course surveys and post-tests upon completion of their courses. The specific number of responses to each evaluation instrument is provided in the table below.

Course	Pre-Course Survey	Post-Course Survey	Pre- Post-Tests[8]
Algebraic Thinking	22	23	23
Circuits	25	21	21
Elementary Life Science	24	19	19
Fractions	11	8	11
Number Sense	25	20	20
UDL Brockton	10	10	10
UDL Smith Vocational	22	12	11
Using Real Data I (Cambridge)	9	9	9
Using Real Data II (Newton)	18	16	16
Total	166	138	140

[8] Since pre- and post-test data were matched prior to conducting the analyses, only the total numbers of matched tests are listed in the table.

Eighteen of the 23 online course facilitators responded to the mentoring survey, resulting in a response rate of 78 percent. A breakdown of respondents by course is listed in the table that follows.

Which course did you facilitate?	N	Percent
Using Real Math Data in the Mathematics Classroom	5	27.8%
Mathematics – Fractions for Elementary School Teachers	4	22.2%
Teaching Elementary Life Science	4	22.2%
Algebraic Thinking: Differentiating to Reach All Learners	2	11.1%
Universal Design for Learning and Reading Comprehension Strategies	2	11.1%
Teaching Electricity and Circuits through Inquiry	1	5.6%
Total	18	100%

Quantitative Analysis of Valid Responses

The foundations of the report are descriptive statistics (frequencies and mean scores) based on the available survey responses. The total number of valid responses for any particular question may vary because some individuals, either intentionally or inadvertently, failed to answer one or more of the questions, and other individuals failed to complete the survey at all.

Since pre- post-tests across courses were not on the same scale, a gain score for each individual was calculated as the difference between the pre-test and post-test score based on 100 percent. The mean of these individual gain scores for each course represents the mean gain. To determine the statistical significance of these gains, a paired sample t-test was computed on the scores for each district[9].

Qualitative Analysis of Open-Ended Responses

Open-ended responses to surveys were entered into a database and analyzed using a standard qualitative technique. The approach involved multiple readings of the data set and the assignment of themes around recurring ideas. Once themes were identified, each response was coded by its appropriate theme. The coded responses were then read and re-read in their thematic grouping to further identify patterns. In cases where there was a large diversity of responses, summary information related to the diversity is also provided. The findings of the qualitative analysis are referred to in the body of the report.

[9] Due to an inability to match pre- and post-test data from the UDL Brockton course, an independent sample t-test was conducted using pre-test data from the spring 2008 respondents and post-test data from the summer 2008 respondents. Students in the Brockton course were instructed to take the wrong pre-course survey and pre-test, which resulted in a lack of usable pre-test data for a paired sample t-test comparison.

Results

This section of the report includes a brief overview of each course, findings from pre-course surveys, post-course surveys, content-specific pre- post-tests, and mentor surveys. Results are presented in aggregate form in the body of the report. Post-course survey responses are also disaggregated by course and are provided in Appendix .

Course Summaries

An overview of each course is presented, including summary information regarding the course provider, subject matter, grade level, and district in which each course was developed.

AT and UDL Strategies to Support Teaching Middle School Science

This science and technology/engineering course was developed for middle school teachers in the Brockton public school district by the Massachusetts Elementary School Principals' Association (MESPA). MESPA is the largest professional school administrators' organization in Massachusetts. It provides extensive face-to-face and online professional development programs and courses for all educators, pre-K–12. This online course addressed the skills, strategies, and devices necessary to create a universally designed classroom that maximizes every student's ability to achieve at high levels. The course targeted general and special educators in grades 6–8 and focused on the development and integration of universally designed supports for reading and writing skills in science. Teachers learned to employ varied strategies in working with students (whole class, small group, peer to peer, individual) in order to address the needs of their students, as well as to provide multiple options for students' expression of their understanding of skills and concepts.

Teaching Elementary Life Science

This science and technology/engineering course was developed for K–6 teachers in the Easthampton public school district by PBS TeacherLine. The course was adapted by WGBY, the local course provider for PBS TeacherLine and a resource for offering online professional development to individual pre-K–12 teachers and districts. The Teaching Elementary Life Science course was designed to enhance educators' understanding and teaching of life science. It began with the principles of constructivist learning, inquiry, and exploration-based science. Throughout, the emphasis on content was designed to give teachers a comprehensive understanding of life science to increase students' understanding at an elementary level. The course concluded with the development of a curriculum design project and a final assessment.

Teaching Electricity and Circuits through Inquiry

This science and technology/engineering course was developed for grade 3–5 teachers in the New Bedford public school district by EdTech Leaders Online (ETLO). ETLO is based in the Center for Online Professional Education at Education Development Center (EDC), a large education nonprofit based in Newton, Massachusetts. ETLO is a nationally recognized, capacity-building online professional development program that provides online facilitator and course developer training and a catalogue of over 40 standards-based online workshops in specific K–12 subject areas. The Teaching Electricity and Circuits through Inquiry course was designed to teach participants about the science behind electric circuits and how this content can be taught through inquiry. The course helped teachers gain a better understanding of electricity and circuit content, including conducting and insulating materials, open and closed circuits, series and parallel circuits, and electromagnets. Participants

considered inquiry-based methods to introduce the content to students. They also enhanced their questioning techniques to help students make predictions about electricity and circuits. The final project required participants to demonstrate the key concepts they learned and to apply the teaching methods introduced in the course.

Algebraic Thinking: Differentiating to Reach All Learners

This mathematics course was also developed by ETLO/EDC for grade 4–10 teachers in the Winchendon public school district. The Algebraic Thinking course introduced participants to a framework for describing algebraic thinking, seeing, and creating opportunities for algebraic thinking in classroom activities, and identifying evidence of algebraic thinking in students' work. Participants learned ways to apply principles of differentiated instruction specifically to mathematics teaching. Technology tools and Web-based materials were used to provide important ways for mathematics educators to meet key standards that emphasize problem solving and connections between mathematics, other disciplines, and the real world. This course provided participants with a variety of activities and problems that promoted algebraic thinking, introduced them to online tools, and guided them in using principles of differentiated instruction to adapt existing lessons to promote richer algebraic thinking.

Developing Number Sense

This mathematics course was developed for grade 3–8 teachers in the Community Day Charter School and the Lawrence public school district by Community Partners Initiative (CPI). CPI is the training division of The Community Group, an educationally focused nonprofit that has successfully provided early education and elementary education programs since 1970. The Developing Number Sense course was designed for mathematics teachers with a range of experience levels. Course participants considered basic principles of Universal Design for Learning (UDL) within the context of students' number sense. The course also addressed number sense standards, effective approaches to assessing number sense, and the role of vocabulary and discussion in the mathematics classroom. The course included one face-to-face session, as well as ongoing online discussions, independent activities, relevant readings, and a final project.

Mathematics – Fractions for Elementary School Teachers

This mathematics course was developed for K–5 teachers in the Springfield public school district by Virtual High School Global Consortium (VHS). VHS is a collaborative of over 450 middle and high schools in 28 states and 35 international schools working together to offer online courses to students. VHS offers online professional development to prepare classroom teachers to teach online and provides the administrative, management, technical, and training support needed to design and deliver high-quality, innovative, core technical and elective courses over the Internet. The Fractions for Elementary Teachers course was designed to promote the understanding of fractions for elementary school teachers both from a conceptual and mechanical perspective. Each participant created a standards-based portfolio of lessons, specific to their own grade level, to teach fractions to their own students.

Using Real Data in the Math Classroom

This mathematics course was developed by ETLO/EDC for middle and high school teachers in the Cambridge and Newton public school districts. The course was designed to explore a range of Web-based resources and exemplary projects which utilize technology. Participants learned how to find sources of real data on the Web and explore how technology tools, such as spreadsheets, can help students analyze, visualize, and make sense of these data. Technology tools and Web-based materials provided important ways for mathematics educators to meet key NCTM standards and Massachusetts frameworks that emphasize problem solving and making connections between mathematics, other disciplines, and the real world. These standards include a significant emphasis on

representing and analyzing data, including a focus on being able to evaluate the sources of data and the effectiveness of different representations that students will encounter both in and out of school.

Reading Comprehension Strategies and Universal Design for Learning for the Middle and High School Teacher

This Universal Design for Learning (UDL) course was developed by the Center for Applied Special Technology (CAST) for grade 6–12 teachers of English language arts, social studies, and science in the Smith Vocational & Agricultural public school district. Founded in 1984, CAST is a nonprofit education research and development organization that works to expand learning opportunities for all individuals, including those with disabilities, through UDL. This course concretized the principles, applications, and research background of UDL by exploring how instructional technologies can be used effectively, how digital media can increase the accessibility of core instructional materials and textbooks, and how these tools and supports can support middle and high school students in developing reading comprehension and vocabulary skills.

Pre-Course Survey

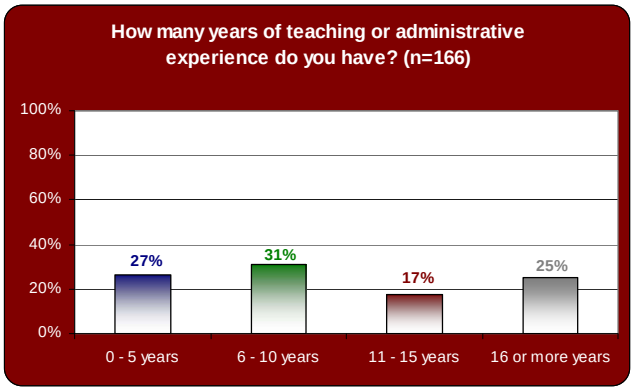
Pre-course surveys included several demographic questions and questions pertaining to participants' experience levels and perceptions of a variety of items. All data are reported in aggregate form. Participants came from a variety of teaching levels, with elementary and middle school teachers comprising approximately half of all respondents. The following table includes a specific breakdown of participants' employment status.

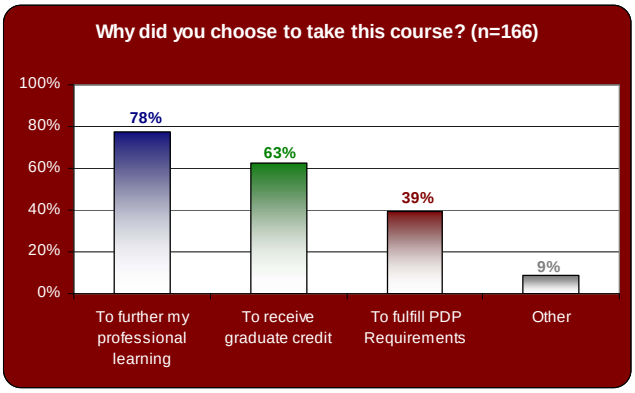
Which of the following best describes your current employment status?	N	Percent
K–2 Teacher	5	3%
Grade 3–5 Teacher	39	24%
Middle School Teacher	44	27%
High School Teacher	11	7%
Special Education Teacher	23	14%
Curriculum Coordinator or Director	4	2%
Department Head	1	1%
Technology Coordinator or Director	1	1%
Other Administrator	3	2%
Other	34	21%
Total	165	100%

"Other" responses included the following: Speech and language pathologist (n=3), K–5 Math Coach (n=3), paraprofessional, grades 6–8 math coach, and math/science coach (n=2 each). The final "other" responses included culinary arts instructor, school nurse, vice principal, K–12 teacher, special education paraprofessional, Title 1 paraprofessional, K–5 science coach, grades 1–5 math teacher, math teacher, physical education teacher, high school science headmaster, teacher's aide, grades 7–9 teacher, middle school Title 1 teacher, math instructional leadership specialist, district math ILS, CPDT math, on leave of absence, work with K–5 teachers, grades 1–3 teacher, K–6 teacher, and K–6 science teacher (n=1 in each case).

The teaching and/or administrative experience of respondents ranged from five years or less (27 percent) to more than 16 years (25 percent). When asked to indicate why they enrolled in the course, most participants (78 percent) reported an interest in furthering their professional learning, 63 percent were interested in receiving graduate

credit, and 39 percent indicated they took the course to fulfill PDP or certification requirements.[10] The "other" category included desired pay increases (n=3), more knowledge in the area (n=2), curiosity, interest in topic, keeping up to date and becoming a better teacher, good reviews from colleagues, sharing experiences with classmates, and helping to "bridge the gap between elementary and middle school science" (n=1 in each case).





Seventy-three percent of the respondents had never taken an online course or had only taken one online course prior to participating in the POPD course.

How many online courses have you taken prior to this course?	N	Percent
0	73	45%
1	46	28%
2	11	7%
3–5	24	15%
6–10	5	3%
11–25	2	1%
"Many"	3	2%
Total	164	100%

Most (92 percent) had cable or DSL Internet access at home. Two respondents did not know what type of Internet access they had, and two did not have any Internet access at home. "Other" responses included FIOS (n=4), wireless (n=3), satellite (n=2), and Comcast Broadband (n=1).

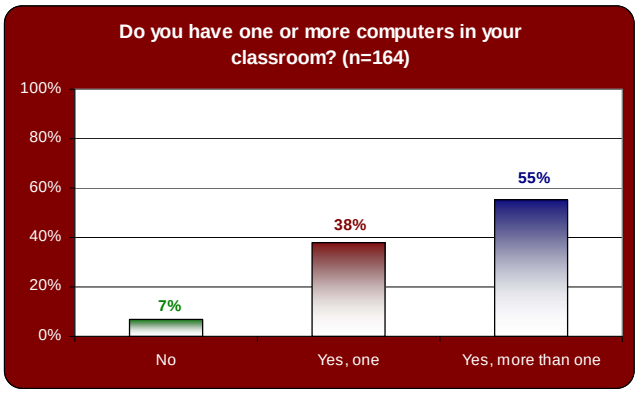
What type of Internet access do you have at home?	N	Percent
Cable	94	57%
DSL	58	35%
None	2	1%
Don't Know	2	1%
Other	10	6%
Total	166	100%

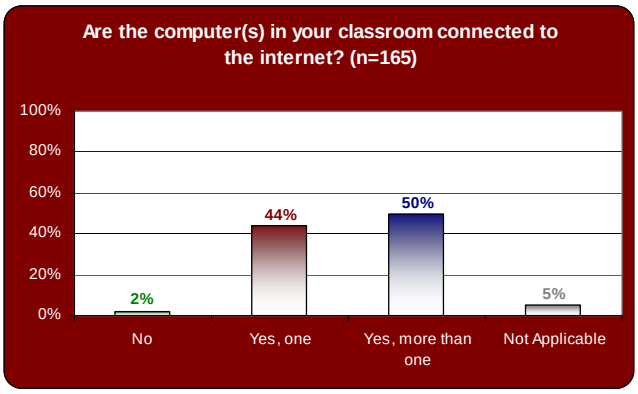
[10] Participants were asked to "choose all that apply." For this reason, totals exceed 100 percent.

Approximately half of all respondents did not know what type of Internet was being used at their school. Another 34 percent indicated that their schools had cable or T3 or T1 connection, and 14 percent reported DSL Internet access at school. "Other" responses included network (n=2), Comcast Broadband, FIOS, wireless, wireless and LAN, and "no school" (n=1 each).

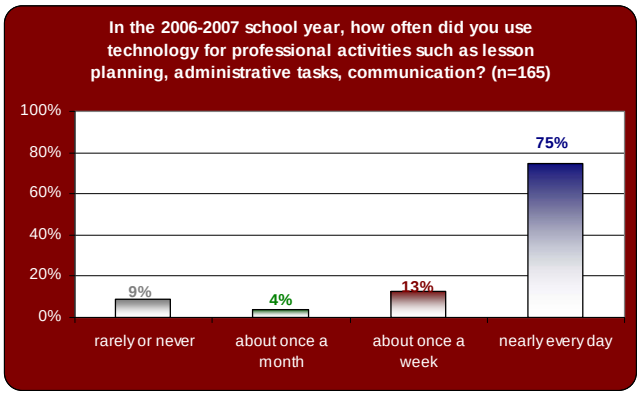
What type of Internet access do you have at school?	N	Percent
Don't Know	79	48%
Cable	30	18%
T3 or T1	27	16%
DSL	23	14%
Other	7	4%
Total	166	100%

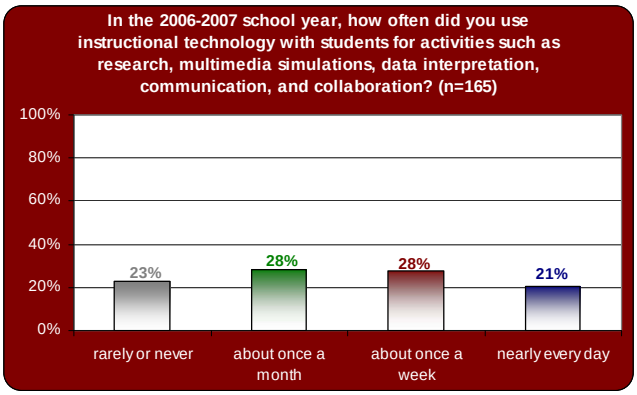
Most participants indicated they had one or more computers in their classroom and access to the Internet on the computers in their classroom, but this was not the case for all participants[11].





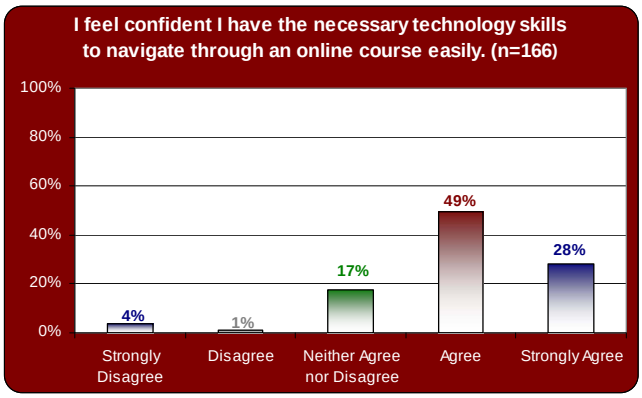
Seventy-five percent of respondents indicated that they use technology skills on a daily basis for professional activities, although only 21 percent reported integrating technology into classroom activities on a daily basis.





[11] Total percentages may exceed 100% due to rounding.

Seventy-seven percent of respondents reported confidence in their abilities to navigate through an online course.



Most of the course participants (98 percent) had never taught an online class previously. Two respondents indicated that they had taught one online course, and one indicated teaching three.

How many online courses have you taught?	N	Percent
0	157	98%
1	2	1%
3	1	1%
Total	160	100%

Eleven percent of participants indicated that they were taking the course as a part of a team from their school or district, 17 percent indicated that they had previously taken a course through MassONE, and 12 percent had previously taken a course through Moodle.

Are you taking this course as part of a team from your school or district?	N	%
No	148	89%
Yes	18	11%
Total	166	100%

Have you ever taken a course through MassONE before?	N	%
No	138	83%
Yes	28	17%
Total	166	100%

Have you ever taken a course through Moodle before?	N	%
No	146	88%
Yes	19	12%
Total	165	100%

At the end of the pre-course survey, participants were asked to respond to an open-ended question about their expectations and concerns about the course. One hundred and ten respondents provided information related to their expectations. Of these, more than two-thirds (69 percent, n=76) reported that they expected to learn more

effective teaching/curriculum strategies and methods. Thirty-two respondents (29 percent) indicated that they expected to gain a more solid foundation of content knowledge, ultimately allowing them to communicate lessons to their students more clearly. Eight respondents (7 percent) were particularly interested in learning strategies to help struggling or special education students. Seven respondents hoped to obtain real data to use in their classrooms and five hoped to learn how to effectively implement technology into their curriculum. Another five respondents expected to learn about distance/online learning and decide whether it was something they would like to continue, and three respondents were interested in learning about inquiry-based instruction. Other responses included sharing ideas and experiences with other teachers (n=2), gaining graduate credits/PDPs (n=2), learning about "habits of the mind" (n=1), increasing content knowledge for MCAS prep (n=1), and learning methods and concepts (n=1).

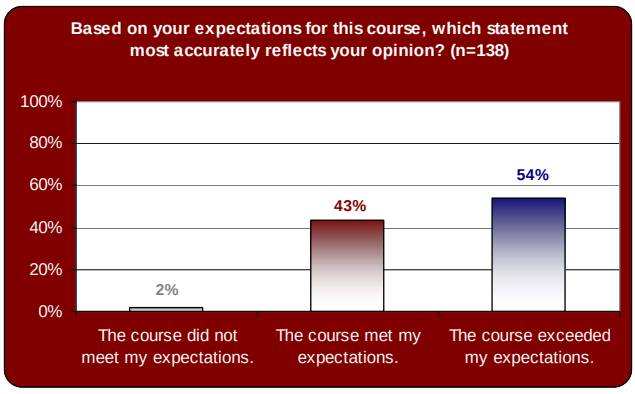
Thirty-two respondents also provided concerns about the course they were enrolled in. The most commonly cited concern was a general wariness of technology, reported by 12 respondents (38 percent). Seven respondents (22 percent) reported that this was their first online course, which in itself caused some concern for them. Three respondents worried about the amount of work, and three more were concerned about managing or not having enough time in the course. Two reported skepticism of online courses in general, and two were worried about deadlines and completing all tasks. Two respondents indicated that they had no concerns going into the course. The final reported concerns were about missed work on vacation, grades, and navigating the website (n=1 each).

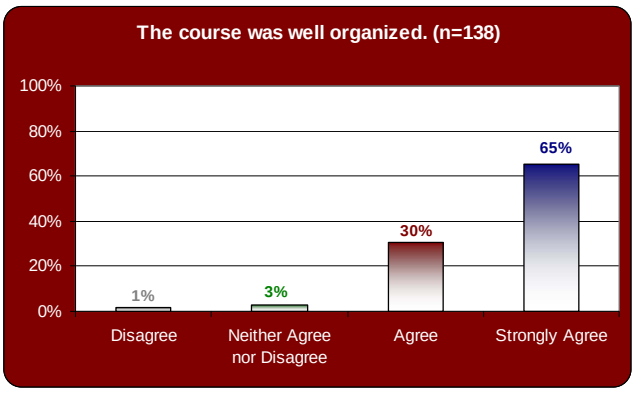
Post-Course Survey

Post-course surveys included several Likert scale items asking participants to rate various aspects of their experiences in the course. The survey also asked participants to indicate what they believed the most significant course strengths and challenges were, along with their suggestions for course improvement.[12] The following data are reported in aggregate form. Responses to each item are also disaggregated by course in the Appendix.

Closed-Response Items

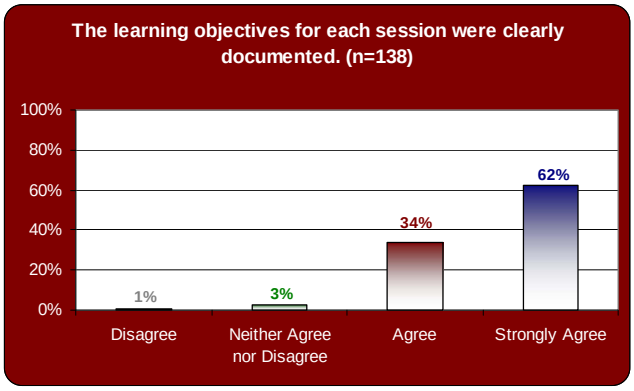
One hundred and thirty eight participants responded to post-course surveys. Of these, 98 percent indicated that the course they participated in met or exceeded their expectations. Three respondents (2 percent) indicated that the course did not meet their expectations. Most (95 percent) agreed or strongly agreed that the course was well organized.

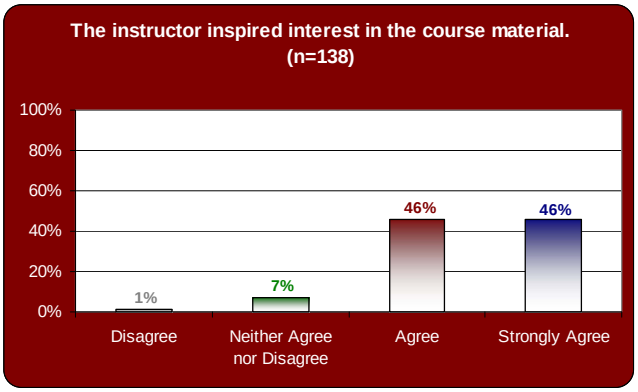




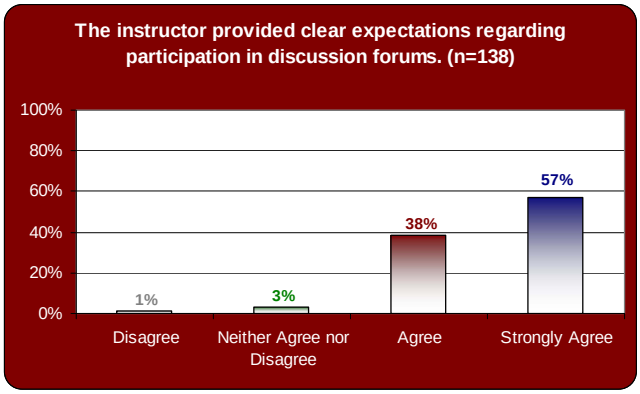
[12] Total percentages in many of these charts do not equal 100% due to rounding.

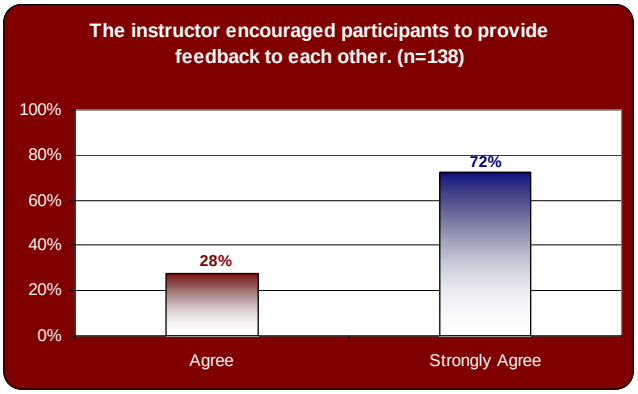
Most also agreed or strongly agreed that the learning objectives for the course were clearly documented and that the instructor inspired interest in the course (96 percent and 92 percent respectively).



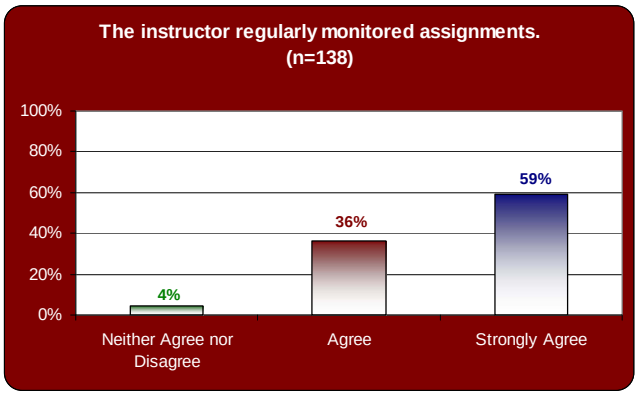


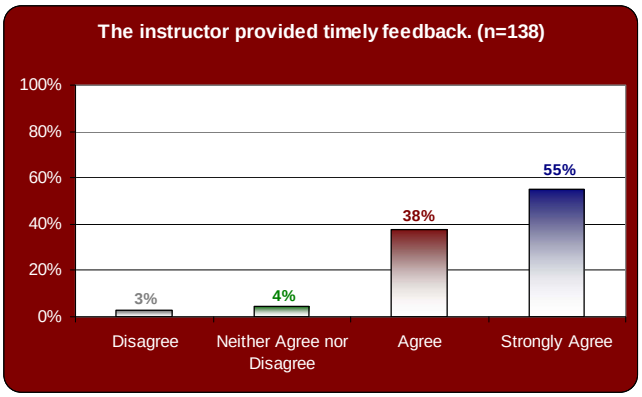
Ninety-five percent of respondents agreed or strongly agreed that the instructor provided clear expectations regarding participation in discussion forums, and all respondents indicated that the instructor encouraged participants to provide feedback to each other.



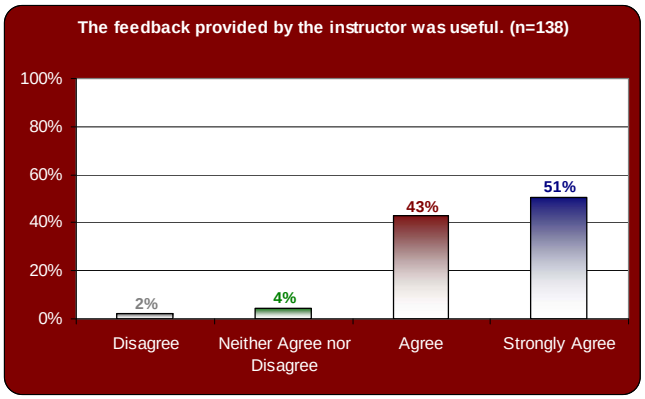


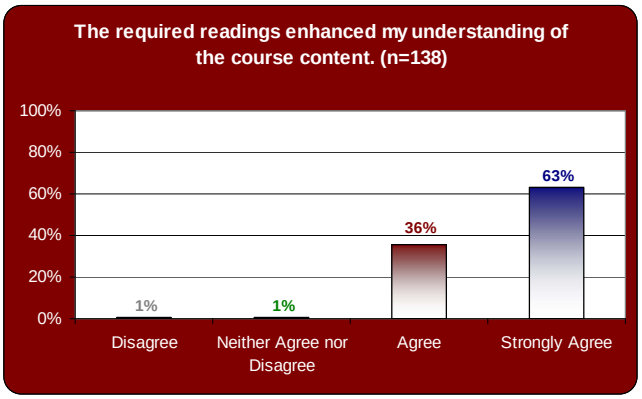
Ninety-five percent indicated the instructor regularly monitored assignments, and 93 percent reported the instructor provided timely feedback.



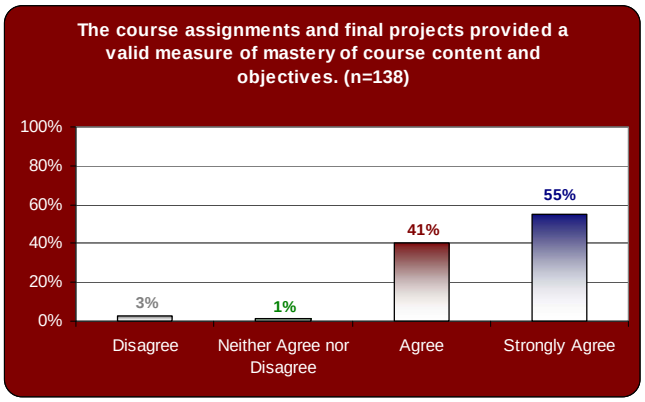


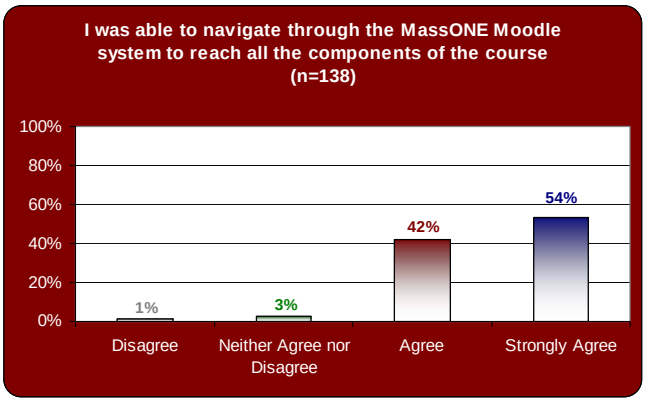
Ninety-four percent of respondents indicated that instructor feedback was useful, and 99 percent of respondents said required readings enhanced their understanding of course content.



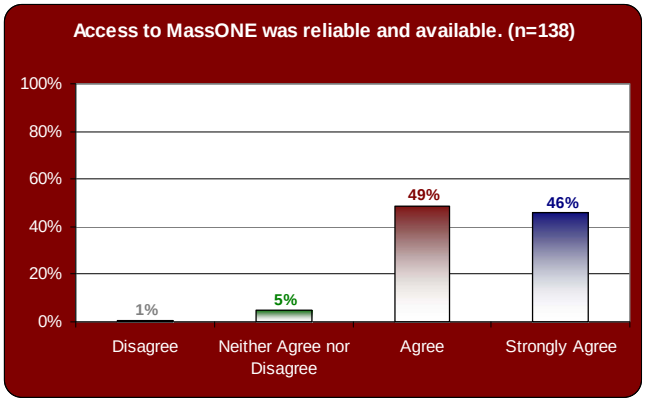


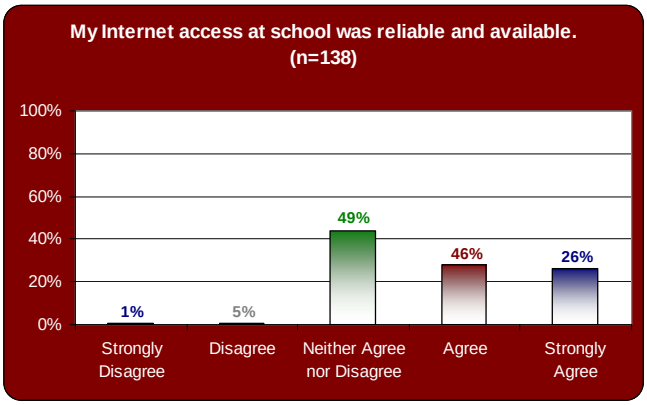
Most (96 percent) indicated that course assignments and final project were valid measures of course content and objectives. Ninety-six percent were able to navigate through the MassONE Moodle system to reach all course components.



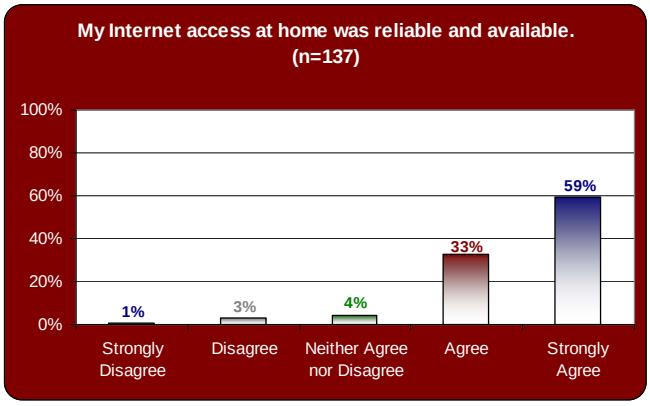


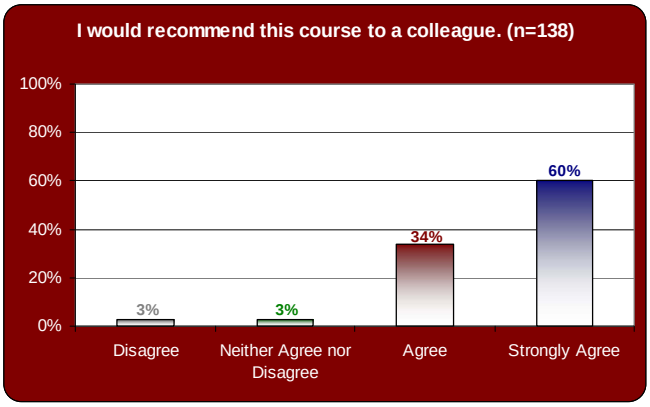
According to 95 percent of respondents, access to MassONE was reliable and available; however, only 72 percent indicated that Internet access was reliable and available at school.



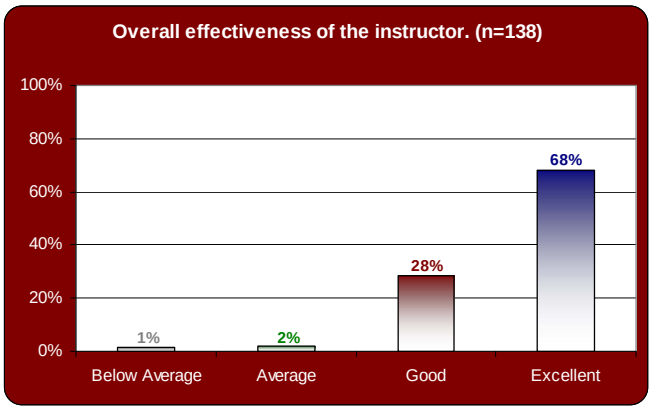


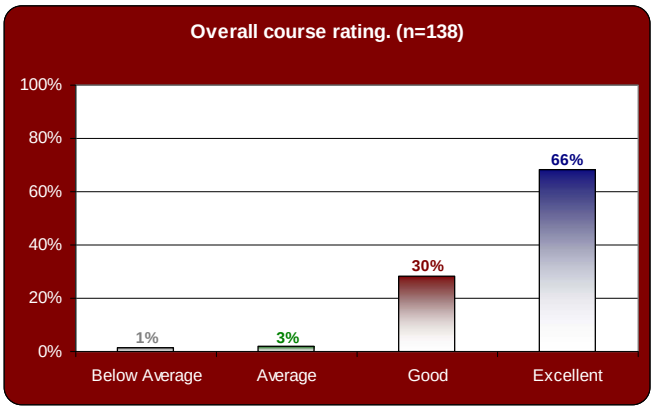
Ninety-two percent of respondents reported reliable and available home Internet access. Ninety-four percent would recommend the course they took to a colleague.





Sixty-eight percent of respondents rated the overall effectiveness of the instructor as excellent, and 28 percent indicated that instructor effectiveness was good. Overall course ratings were rated excellent by 66 percent and good by 30 percent of respondents.





Open-Response Items

Open-ended post-course survey questions are summarized below. Though respondents participated in different courses, responses are presented in aggregate form due to the overarching themes identified across courses.

What were the most significant strengths of this course?

One hundred and thirty-eight participants responded to this question. Eighty-six respondents (62 percent) expressed positive perceptions of the content of the course and the fact that it was relevant to the classroom. One participant wrote: “The quality of the readings and activities were very strong for this course. They were all something I can either use in my classroom or share with the math teacher on my team who I know will use them.” Sixty-seven respondents (49 percent) reported good interaction with instructors and other participants through the discussion board and commented on the quality of instructors; one participant wrote, “The knowledge and generosity of the Instructors and other students was incredible—I have a wealth of experience and resources now at my fingertips!”

Thirty-three participants (24 percent) were complimentary about the quality of multimedia materials presented within the course, including websites, readings, and WebQuests. Participants expressed the importance of these materials on their learning processes and enhancement of the overall quality of the course. One participant wrote, "The course materials and lessons are excellent. Great use of media and good materials were selected." Nineteen respondents (14 percent) reflected positively on the overall organization of the course, including ease of use and clear expectations and deadlines. Five participants were appreciative of the flexibility offered by the course, stating that working at one's own pace and at their convenience was a positive aspect of the course.

What was most challenging about this course?

One hundred and thirty-six participants responded to this question. The largest reported challenge, cited by 37 participants (27 percent) was the time commitment involved. The respondents cited the overall time involved in the course as well as problems with time management as a result of the flexibility of the course. Many respondents cited time as a problem particularly in the context of the summer months and planned vacations. A specific complaint cited by some participants involved the deadlines about posting on the discussion board or the time involved in the final project.

A close second to time management was content challenges; 36 respondents (26 percent) reported that the content, including the activities and final project, was the most challenging aspect of the course. Some participants cited specific components of the content that were particularly challenging, and others commented on the content in general. Many of these respondents focused on challenges within the final project in terms of both time investment and content. Five respondents stated that it was challenging to stay motivated when participating in an online course.

Seventeen respondents (13 percent) reported technological challenges in general. Those who provided specific comments about technology reported issues with the final project template (n=3), problems with computers, access to the course and/or materials, becoming familiar with the format of the course, and downloading required software (n=1 in each case). Thirteen respondents (10 percent) cited the online discussion as a challenge, specifically keeping up with the volume of posts and responding accordingly. Twelve respondents (9 percent) were challenged by the amount of work involved in the course and eight respondents cited the number of instructors as a challenge; they did not know which instructor they were writing to or got inconsistent feedback from different instructors. Five respondents stated that the expectations of the course were not clear from the beginning.

Six respondents found the nature of the online course difficult in the context of not getting to meet in person and discuss the content. Five respondents found it difficult to think of ways to integrate the course material into their own curriculum. Four reported no specific challenges or complaints. Other challenges cited by respondents included narrowing the focus to create an effective posting, lack of a course timeline, unclear assignments, and the overall nature of online learning (n=1 in each case).

How could this course be improved?

One hundred and thirty-six participants responded to this question. Forty-four respondents (32 percent) could not think of any improvements and indicated that they enjoyed the class as it was. Thirteen respondents (10 percent) focused on technology related improvements, mostly reiterating the challenges presented in the previous question. Eleven respondents offered content-based comments specific to their individual course. Eleven respondents suggested fewer assignments and less time commitment, particularly in the context of awarded credits. Eight respondents thought that there should be a change in instructor organization; some suggested only one instructor while others focused on fostering interaction between students and instructors.

Nine respondents indicated that they would have appreciated more feedback from the instructors throughout the course, and nine others indicated they would have appreciated more clarity involving expectations, assignments, and deadlines. Six respondents suggested a more concrete syllabus or course timeline and/or a "progress chart." Five suggested a change to the discussion structure, emphasizing more thoughtful responses and engaging others' comments instead of starting one's own topic. Three respondents suggested a change in their course's final project template[13], and three others suggested foundational sessions (i.e. a background session before learning more advanced applications of the particular subject). Three respondents suggested an accessible library or database of lessons and activities as well as access to course content after the course was completed. Two respondents suggested organizing an in-person meeting, and two suggested a shorter duration for the class.

The remaining responses were diverse and included more up-to-date information, Excel training, longer duration, creating a course for middle school teachers, offering the course within a school, a reference binder for each student, modification of assignments in accordance with student achievement, each section lasting for one week, a PowerPoint assignment, a copy of all final units, one MCAS session instead of spreading it out, offering the same course again, more time for the final project, and a video instruction component (n=1 each).

Any other comments

Fifty-two participants responded to this question. Forty-one respondents (79 percent) offered positive feedback, including overall praise and appreciation. Six respondents (12 percent) expressed interest in taking another online course as a result of the success of their summer course. Three respondents commended the instructors, and two respondents indicated that they would recommend the course they took to others. Two respondents reiterated frustrations involving technology. One participant stated that the course would be effective as a district training course, and one highlighted the importance of offering more mathematics methods courses. One participant expressed interest in a book of class content. Finally, one participant was unsure whether he/she would recommend the course to others, as the respondent did not understand the point of some of the assignments.

Content-Specific Pre– Post–Tests

The results of the pre- post-tests are provided in the table that follows. In all courses, mean gain scores indicated significant overall improvements in participants' content knowledge.

Course[14]	N	Mean Pre-Score	Mean Post-Score	Gain Score
Algebraic Thinking***	23	50.3%	66.4%	16.2%
Circuits***	23	77.0%	89.6%	12.6%
Fractions*	11	83.7%	98.1%	14.4%
Life Science*	19	83.4%	89.7%	6.3%
Number Sense***	20	56.8%	81.8%	25.0%
Real Data I (Cambridge)*	9	37.6%	54.8%	17.2%
Real Data II (Newton)**	16	40.0%	58.4%	18.4%
UDL Brockton***	10	46.0%	76.0%	30.0%
UDL Smith Vocational**	11	67.8%	90.6%	22.7%

Gain scores are statistically significant: *p<.05, **p<.01, ***p<.001

[13] These comments referred to a template created by one of the course providers. Participants reported difficulty manipulating the cells of the table within the Word document they were required to use.

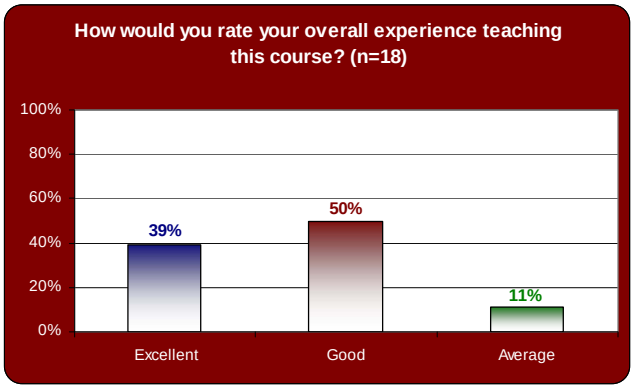
[14] Real Data I and II were one course that was implemented in two separate districts. The UDL courses were two different courses, each implemented in their respective districts.

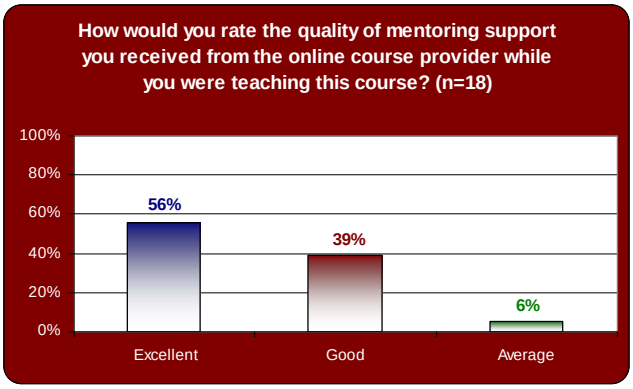
Mentoring Survey

As stated previously, mentoring surveys were developed to assess the effectiveness of the online course providers in ensuring the facilitating teachers had the necessary skills and support to effectively deliver their courses. All summer course instructors were asked to complete a mentoring survey. The majority of the responding instructors (78 percent) indicated they had never taught an online course previously.

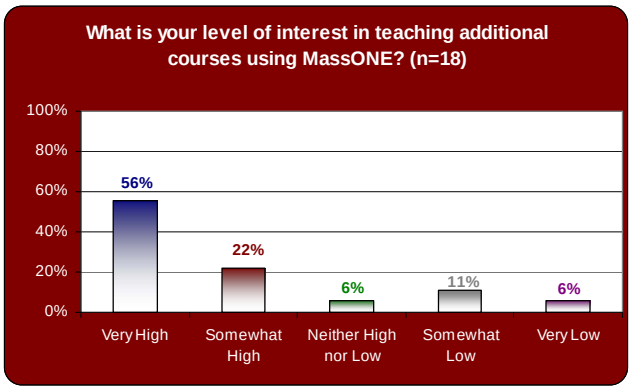
How many online courses have you taught, prior to this course?	N	Percent
0	14	77.8%
1	1	5.6%
3	2	11.1%
4	1	5.6%
Total	18	100%

Eighty-nine percent of respondents rated their overall experience teaching the course as excellent or good, and 95 percent rated the quality of mentoring support received from the online course provider as excellent or good[15].





Seventy-eight percent of respondents rated their interest level in teaching additional courses using MassONE as very high or high.



[15] Percentages do no equal 100% in some cases due to rounding.

Almost all of the 18 respondents strongly or somewhat agreed that the mentoring activities provided them with useful information to facilitate their course and that they had a clear understanding of their role as course facilitator. Approximately 89 percent strongly or somewhat agreed that their mentors provided them with adequate information as they prepared for the facilitation of their course. The same number strongly or somewhat agreed that they were able to easily navigate through the Moodle system, and approximately 72 percent strongly or somewhat agreed that they received prompt feedback about their concerns from their mentor(s) during the facilitation of their courses.

	Strongly Agree	Somewhat Agree	Neither Agree nor Disagree	Somewhat Disagree	Strongly Disagree
The mentoring activities provided me with useful information to facilitate the course I was teaching.	77.8%	16.7%			5.6%
I had a clear understanding of my role as course facilitator.	77.8%	16.7%			5.6%
My mentor(s) provided me with adequate information as I prepared to facilitate my course.	72.2%	16.7%	5.6%		5.6%
It was easy to navigate through the Moodle system.	61.1%	27.8%	5.6%	5.6%	
I received prompt feedback from my mentor(s) regarding concerns that arose while I was facilitating my course.	61.1%	11.1%	11.1%	5.6%	

The survey also asked the course facilitators to answer open-ended questions that identified what was most helpful about the mentoring, how the experience could have been improved, and any additional comments or suggestions.

What was the most helpful about the mentoring you received?

There were 14 responses to this question and some respondents provided more than one answer. Five respondents indicated that their mentor was accessible and very responsive. One of them wrote, “we actually had face-to-face meetings. He helped me set expectations, carry forum discussions, and gave very prompt feedback on any issues I brought up.” Two respondents found the course for facilitators most helpful. The remaining respondents had unique answers that included Moodle training, practice modules, hints, understanding, clearer explanations, video tutorials, and technical support.

In what way, if any, could your teaching experience have been improved?

There were 13 responses to this question and again, some respondents provided more than one answer. Four respondents stated that they could not think of any necessary improvements to their teaching experiences, and that they had good experiences or were “still reflecting” on their experiences. Two respondents stated that Moodle training would have improved their experiences, and two more wanted better information about registration (for the course). Other suggestions included smaller classes, faster grading/feedback, quicker email responses, help with the final project template[16], more time for the course and/or an earlier start date, and fixing broken links more promptly.

[16] Refer to footnote 13 on page 17 for further clarification related to this comment.

Please provide any additional comments or suggestions you may have.

There were 12 responses to this question, which also included multiple answers from some respondents. Seven respondents commented that it was an enjoyable and useful experience. One respondent wrote, “The mentoring and facilitation were great learning experiences for me as a relative newcomer to technology and online learning.” Four respondents expressed interest in continuing the work. Two respondents offered critiques: one stated that it was difficult to co-facilitate the course and would have been easier to facilitate independently, and one respondent expressed that more direction would have been helpful.

Conclusion

The Massachusetts Department of Elementary and Secondary Education provided funding for nine online courses to be taught in eight districts during the summer of 2008. These courses were taught by teachers who had completed the same courses in spring 2008 and then participated in a mentoring program to ensure they had adequate skills and support to facilitate the summer courses to other teachers in their districts.

Based on the available data, all courses were successful in meeting previously defined criteria. Course participants completed pre-course surveys (n=166), post-course surveys (n=138), and content-specific pre- post-tests (n=140). Of the 138 participants who took the post-course survey:

- 98 percent indicated that the course they participated in met or exceeded their expectations.
- 95 percent reported that the course was well organized.
- 94 percent indicated that instructor feedback was useful.
- 99 percent said that required readings enhanced their understanding of course content.
- 96 percent rated the overall effectiveness of the instructor as excellent or good.
- 96 percent rated the overall quality of their courses as excellent or good.

In addition to participants' high ratings of the courses and their instructors, it is clear that participants also improved their knowledge of course content: *On the pre- post-tests for all courses, mean gain scores indicated statistically significant overall improvements in content knowledge.*

One hundred and thirty-eight participants provided information related to course strengths. Eighty-six respondents (62 percent) expressed positive perceptions of the content of the course and the fact that it was relevant to the classroom. Sixty-seven respondents (49 percent) reported good interaction with instructors and other participants through the discussion board and commented on the quality of instructors. Thirty-three participants (24 percent) were complimentary about the quality of multimedia materials presented within the course, including websites, readings, and WebQuests. Participants expressed the importance of these materials on their learning processes and enhancement of the overall quality of the course. Nineteen respondents (14 percent) reflected positively on the overall organization of the course, including ease of use and clear expectations and deadlines. Five participants were appreciative of the flexibility offered by the course, stating that working at one's own pace and at their convenience was a positive aspect of the course.

Participants had relatively few concerns about the courses they took. Of the 137 participants who responded to the post-survey question about the courses' challenging aspects, 37 participants (27 percent) mentioned the required time commitment (especially as it related to summer vacation plans), and 36 respondents (26 percent) reported that the content, including the activities and final project, was the most challenging aspect of the course. Seventeen respondents (13 percent) reported technological challenges, which included problems with computers, access to the course and/or materials, becoming familiar with the format of the course, and downloading required software. Thirteen respondents (10 percent) cited the online discussion as a challenge, specifically in terms of keeping up with the volume of posts and responding accordingly.

A few participants provided suggestions on how to improve the courses they took. Thirteen respondents focused on technology related improvements, 11 offered content-based comments, another 11 advocated for fewer assignments and less time commitment, 9 indicated that they would have liked more feedback from the instructors throughout the course, and 9 more would have liked more clarity involving expectations, assignments, and deadlines.

Eighteen of the 23 summer course instructors also completed surveys related to the mentoring support they received while facilitating their course. Based on these available data, instructors reported that facilitating the summer session was a positive experience.

- 89 percent rated their overall experience of teaching the course as excellent or good.
- 95 percent rated the quality of mentoring support received from online course providers as excellent or good.
- 95 percent reported that the mentoring activities provided them with useful information to facilitate their course and that they had a clear understanding of their role as course facilitator.
- 72 percent reported they received prompt feedback about their concerns from their mentor(s) during the facilitation of their courses.
- 89 percent indicated they were able to easily navigate through the Moodle system and 78 percent indicated interest in teaching additional online courses using MassONE.

Appendix : Post-Course Survey Results by Course

Based on your expectations for this course, which statement most accurately reflects your opinion?

	Algebraic Thinking	Circuits	Fractions	Life Science	Number Sense	UDL Brockton	UDL Smith Voc	Real Data I	Real Data II	Total
The course did not meet my expectations.	0	0	1	0	2	0	0	0	0	3
The course met my expectations.	10	8	4	7	12	3	6	4	6	60
The course exceeded my expectations.	13	13	3	12	6	7	6	5	10	75
Total	23	21	8	19	20	10	12	9	16	138

The course was well organized. (Findings are statistically significant, p<.05)

	Algebraic Thinking	Circuits	Fractions	Life Science	Number Sense	UDL Brockton	UDL Smith Voc	Real Data I	Real Data II	Total
Strongly Disagree	0	0	0	0	0	0	0	0	0	0
Disagree	0	0	0	0	1	0	1	0	0	2
Neither Agree nor Disagree	0	1	0	0	1	1	1	0	0	4
Agree	3	2	3	6	11	3	8	2	4	42
Strongly Agree	20	18	5	13	7	6	2	7	12	90
Total	23	21	8	19	20	10	12	9	16	138

The learning objectives for each session were clearly documented.

	Algebraic Thinking	Circuits	Fractions	Life Science	Number Sense	UDL Brockton	UDL Smith Voc	Real Data I	Real Data II	Total
Strongly Disagree	0	0	0	0	0	0	0	0	0	0
Disagree	0	0	0	0	1	0	0	0	0	1
Neither Agree nor Disagree	0	1	0	1	2	0	0	0	0	4
Agree	4	4	4	5	9	5	8	1	7	47
Strongly Agree	19	16	4	13	8	5	4	8	9	86
Total	23	21	8	19	20	10	12	9	16	138

The instructor inspired interest in the course material.										
	Algebraic Thinking	Circuits	Fractions	Life Science	Number Sense	UDL Brockton	UDL Smith Voc	Real Data I	Real Data II	Total
Strongly Disagree	0	0	0	0	0	0	0	0	0	0
Disagree	0	0	0	1	0	0	1	0	0	2
Neither Agree nor Disagree	1	1	1	4	3	0	0	0	0	10
Agree	10	6	2	8	9	6	8	5	9	63
Strongly Agree	12	14	5	6	8	4	3	4	7	63
Total	23	21	8	19	20	10	12	9	16	138

The instructor provided clear expectations regarding participation in discussion forums.										
	Algebraic Thinking	Circuits	Fractions	Life Science	Number Sense	UDL Brockton	UDL Smith Voc	Real Data I	Real Data II	Total
Strongly Disagree	0	0	0	0	0	0	0	0	0	0
Disagree	0	0	0	1	1	0	0	0	0	2
Neither Agree nor Disagree	0	2	0	0	2	0	0	0	0	4
Agree	4	5	3	10	7	4	9	6	5	53
Strongly Agree	19	14	5	8	10	6	3	3	11	79
Total	23	21	8	19	20	10	12	9	16	138

The instructor encouraged participants to provide feedback to each other.										
	Algebraic Thinking	Circuits	Fractions	Life Science	Number Sense	UDL Brockton	UDL Smith Voc	Real Data I	Real Data II	Total
Strongly Disagree	0	0	0	0	0	0	0	0	0	0
Disagree	0	0	0	0	0	0	0	0	0	0
Neither Agree nor Disagree	0	0	0	0	0	0	0	0	0	0
Agree	4	5	1	9	6	2	4	2	5	38
Strongly Agree	19	16	7	10	14	8	8	7	11	100
Total	23	21	8	19	20	10	12	9	16	138

The instructor regularly monitored assignments. (Findings are statistically significant, p<.05)										
	Algebraic Thinking	Circuits	Fractions	Life Science	Number Sense	UDL Brockton	UDL Smith Voc	Real Data I	Real Data II	Total
Strongly Disagree	0	0	0	0	0	0	0	0	0	0
Disagree	0	0	0	0	0	0	0	0	0	0
Neither Agree nor Disagree	1	1	0	2	0	0	0	1	1	6
Agree	6	2	3	10	13	1	8	3	4	50
Strongly Agree	16	18	5	7	7	9	4	5	11	82
Total	23	21	8	19	20	10	12	9	16	138

The instructor provided timely feedback.										
	Algebraic Thinking	Circuits	Fractions	Life Science	Number Sense	UDL Brockton	UDL Smith Voc	Real Data I	Real Data II	Total
Strongly Disagree	0	0	0	0	0	0	0	0	0	0
Disagree	0	1	0	0	1	0	2	0	0	4
Neither Agree nor Disagree	2	1	0	0	3	0	0	0	0	6
Agree	6	6	3	9	12	1	5	4	6	52
Strongly Agree	15	13	5	10	4	9	5	5	10	76
Total	23	21	8	19	20	10	12	9	16	138

The feedback provided by the instructor was useful.										
	Algebraic Thinking	Circuits	Fractions	Life Science	Number Sense	UDL Brockton	UDL Smith Voc	Real Data I	Real Data II	Total
Strongly Disagree	0	0	0	0	0	0	0	0	0	0
Disagree	0	1	0	0	1	0	1	0	0	3
Neither Agree nor Disagree	0	1	0	1	4	0	0	0	0	6
Agree	12	6	4	9	7	4	6	5	6	59
Strongly Agree	11	13	4	9	8	6	5	4	10	70
Total	23	21	8	19	20	10	12	9	16	138

The required readings enhanced my understanding of the course content.										
	Algebraic Thinking	Circuits	Fractions	Life Science	Number Sense	UDL Brockton	UDL Smith Voc	Real Data I	Real Data II	Total
Strongly Disagree	0	0	0	0	0	0	0	0	0	0
Disagree	0	0	1	0	0	0	0	0	0	1
Neither Agree nor Disagree	0	0	0	0	0	0	1	0	0	1
Agree	9	6	4	6	6	6	3	3	6	49
Strongly Agree	14	15	3	13	14	4	8	6	10	87
Total	23	21	8	19	20	10	12	9	16	138

The course assignments and final project provided a valid measure of mastery of course content and objectives.										
	Algebraic Thinking	Circuits	Fractions	Life Science	Number Sense	UDL Brockton	UDL Smith Voc	Real Data I	Real Data II	Total
Strongly Disagree	0	0	0	0	0	0	0	0	0	0
Disagree	0	0	0	1	3	0	0	0	0	4
Neither Agree nor Disagree	0	1	0	0	0	0	1	0	0	2
Agree	9	6	4	10	6	6	7	2	6	56
Strongly Agree	14	14	4	8	11	4	4	7	10	76
Total	23	21	8	19	20	10	12	9	16	138

I was able to navigate through the MassONE Moodle system to reach all the components of the course.										
	Algebraic Thinking	Circuits	Fractions	Life Science	Number Sense	UDL Brockton	UDL Smith Voc	Real Data I	Real Data II	Total
Strongly Disagree	0	0	0	0	0	0	0	0	0	0
Disagree	0	0	0	1	0	0	1	0	0	2
Neither Agree nor Disagree	0	0	1	0	1	0	1	0	1	4
Agree	9	7	5	6	6	7	6	5	7	58
Strongly Agree	14	14	2	12	13	3	4	4	8	74
Total	23	21	8	19	20	10	12	9	16	138

Access to MassONE was reliable and available.	Algebraic Thinking	Circuits	Fractions	Life Science	Number Sense	UDL Brockton	UDL Smith Voc	Real Data I	Real Data II	Total
Strongly Disagree	0	0	0	0	0	0	0	0	0	0
Disagree	1	0	0	0	0	0	0	0	0	1
Neither Agree nor Disagree	0	0	1	1	0	2	0	2	1	7
Agree	11	10	5	10	10	6	5	4	6	67
Strongly Agree	11	11	2	8	10	2	7	3	9	63
Total	23	21	8	19	20	10	12	9	16	138

My Internet access at school was reliable and available.	Algebraic Thinking	Circuits	Fractions	Life Science	Number Sense	UDL Brockton	UDL Smith Voc	Real Data I	Real Data II	Total
Strongly Disagree	0	0	0	1	0	0	0	0	0	1
Disagree	0	0	1	0	0	0	0	0	0	1
Neither Agree nor Disagree	9	9	3	12	8	3	6	5	6	61
Agree	10	4	2	1	6	4	3	4	5	39
Strongly Agree	4	8	2	5	6	3	3	0	5	36
Total	23	21	8	19	20	10	12	9	16	138

My Internet access at home was reliable and available.	Algebraic Thinking	Circuits	Fractions	Life Science	Number Sense	UDL Brockton	UDL Smith Voc	Real Data I	Real Data II	Total
Strongly Disagree	1	0	0	0	0	0	0	0	0	1
Disagree	0	2	0	0	1	0	1	0	0	4
Neither Agree nor Disagree	1	0	0	1	1	1	0	1	1	6
Agree	8	5	3	7	6	5	4	3	4	45
Strongly Agree	13	14	5	11	11	4	7	5	11	81
Total	23	21	8	19	19	10	12	9	16	137

I would recommend this course to a colleague.	Algebraic Thinking	Circuits	Fractions	Life Science	Number Sense	UDL Brockton	UDL Smith Voc	Real Data I	Real Data II	Total
Strongly Disagree	0	0	0	0	0	0	0	0	0	0
Disagree	0	0	1	0	2	0	1	0	0	4
Neither Agree nor Disagree	0	1	0	1	2	0	0	0	0	4
Agree	7	7	3	6	5	4	6	2	7	47
Strongly Agree	16	13	4	12	11	6	5	7	9	83
Total	23	21	8	19	20	10	12	9	16	138

Overall effectiveness of the instructor.	Algebraic Thinking	Circuits	Fractions	Life Science	Number Sense	UDL Brockton	UDL Smith Voc	Real Data I	Real Data II	Total
Below Average	0	0	0	0	1	0	1	0	0	2
Average	0	1	0	1	1	0	0	0	0	3
Good	4	4	4	6	8	2	7	1	3	39
Excellent	19	16	4	12	10	8	4	8	13	94
Total	23	21	8	19	20	10	12	9	16	138

Overall course rating.	Algebraic Thinking	Circuits	Fractions	Life Science	Number Sense	UDL Brockton	UDL Smith Voc	Real Data I	Real Data II	Total
Below Average	0	0	1	0	1	0	0	0	0	2
Average	0	1	0	0	3	0	0	0	0	4
Good	5	5	3	4	4	5	8	3	4	41
Excellent	18	15	4	15	12	5	4	6	12	91
Total	23	21	8	19	20	10	12	9	16	138